

# CLAIMS

What is claimed is:

1. An apparatus for reducing the percentage of liquid in a liquid and solids mixture comprising:

- (a) a holding chamber for receiving a liquid and solids mixture,
  - (b) a conduit for directing liquid from the liquid and solids mixture away from said chamber,
  - (c) a filter separating said conduit from said chamber,
  - (d) a membrane forming a substantially air-tight seal over said chamber,
- and
- (e) a means for reducing pressure in said conduit;

wherein reduced pressure in said conduit causes liquid to be drawn from said holding chamber through said filter into said conduit.

2. The apparatus of claim 1, further comprising a heating means, wherein said heating means elevates the temperature of the liquid and solids mixture.

3. The apparatus of claim 2, wherein said chamber comprises said heating means.

4. The apparatus of claim 3, wherein the heating means is disposed within a wall of said chamber.

5. The apparatus of claim 2, wherein said heating means is disposed within said membrane.

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6. The apparatus of claim 2, further comprising an air injector, wherein said air injector forces air into the mixture.

7. The apparatus of claim 6, wherein said air injector is disposed within said chamber.

5 8. The apparatus of claim 7, wherein said membrane comprises said air injector.

9. The apparatus of claim 8, further comprising a vibrating means for agitating the liquid and solids mixture.

10. The apparatus of claim 9, further comprising a moisture collection tank disposed to receive liquid from the liquid and solids mixture through said conduit.

11. The apparatus of claim 10, further comprising a moisture holding tank disposed to receive liquid from said moisture collection tank.

12. The apparatus of claim 2, further comprising a temperature probe for measuring a temperature of the liquid and solids mixture.

15 13. The apparatus of claim 2, further comprising a thermostat for controlling activation of said heating means.

14. The apparatus of claim 13, wherein the apparatus is a portable scale model of an industrial size apparatus.

15. The apparatus of claim 13, wherein said thermostat is set to between about  
20 100°F and 220°F.

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16. A method for reducing the percentage of liquid in a liquid and solids mixture comprising the steps of:

(a) injecting the mixture into a chamber comprising a conduit and a filter separating said conduit from said chamber;

5 (b) positioning a membrane over said chamber such that said membrane forms a substantially air-tight seal over said chamber;

(c) reducing pressure within said conduit below atmospheric pressure; and

(d) recovering a particulate material from said chamber,

wherein reducing pressure within said conduit causes liquid to flow from said chamber into said conduits.

17. The method of claim 16, further comprising the step of heating the liquid and solids mixture in said chamber.

18. The method of claim 17, wherein the liquid and solids mixture is heated to between 100°F and 220°F.

15 19. The method of claim 17, further comprising the step of injecting air into the liquid and solids mixture.

20. The method of claim 19, further comprising the step of agitating the liquid and solids mixture.

20 21. The method of claim 20, further comprising the step of collecting liquid in a collecting tank.

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